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KNOBBE MARTENS OLSON & BEAR LLP
2040 MAIN STREET
FOURTEENTH FLOOR
IRVINE, CA 92614

EXAMINER	
SPIEGLER, ALEXANDER H	

ART UNIT	PAPER NUMBER
1637	

DATE MAILED: 01/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/056,229	REMACLE ET AL.	
	Examiner	Art Unit	
	Alexander H. Spiegler	1637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _____ .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8,10-61 and 80-94* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,10-61 and 80-94* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *6/26/02* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *8/28/03* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Status of the Application

1. This action is in response to Applicants response, filed on August 25, 2003. Currently, claims 1-8, 10-61 and 80-94 are pending. All arguments have been fully considered and thoroughly reviewed, but are deemed not persuasive for the reasons that follow. This action is made FINAL. Any objections and rejections not reiterated below are hereby withdrawn. Specifically, the 112, 2nd paragraph rejections over "original components", "first category" and "second category" and "the microorganism" have been withdrawn in view of Applicants amendments.

Information Disclosure Statement

2. The information disclosure statement filed on August 28, 2003 complies with CFR 1.97, 1.98 and M.P.E.P. 609, and has been considered (see enclosed signed PTO-1449).

THE FOLLOWING ARE NEW GROUNDS OF REJECTION NECESSITATED BY APPLICANTS AMENDMENTS TO THE CLAIMS

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-8, 10-61 and 80-94 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A) Claims 1-8, 10-61 and 80-94 over "components thereof" because it is not clear as to what constitutes "components thereof" or "components" of an organism. The specification does not teach what is encompassed by a "component thereof". Does this term encompass any of the possible components of an organism, such as sugars, fatty acids, proteins, hair, etc.? It is suggested that the claim be amended to delete "component thereof" or "component". It is noted that claims 50-54 recite different receptors as "components", however these claim limitations do not provide a clear definition of what is to be encompassed by "components".

Applicants Arguments

Applicants argue the recitation of "components" is definite. Specifically, Applicants argue, "paragraph [0175] specifically describes components of organisms such as receptors, antibodies, enzymes, etc."

Response to Applicants Arguments

Applicants' arguments have been considered, but are not persuasive for the following reasons. First, passage [0043] of the specification states, "the biological component according to the invention could be a nucleotide sequence...or an amino acid sequence" (see page 10), which therefore, only gives an example of what *could* be encompassed by the recitation of "component", but not specifically what is meant by "component" (e.g., not specific definition as to what is meant by component). Applicants cite passage [0175] of the specification; this passage also cites only possible elements that *could* be considered to be "components". However, both passages [0043] and [0175] do not define the metes and bounds of what is encompassed by the recitation of "components". By giving only examples of what *could* be

encompassed by the recitation of components, the skilled artisan would not particularly know what would or would not be encompassed by the claimed method.

Even assuming the skilled artisan would know what was encompassed by the recitation of "component", this recitation is still indefinite. For example, assuming that the skilled artisan believes that sugars, fatty acids, stem cells, hair, liver weight, levels of keratin in fingernails, etc. are "components" of a biological organism, it is not clear how the claimed method can "identify" and/or "quantify" these components in a sample carrying out the claimed method.

Accordingly, this rejection is maintained.

B) Claims 1-8, 10-61 and 80-94 over "nucleotide sequence characteristic" because it is not clear as to what is encompassed by the recitation of "characteristic", this is not an art recognized term, and there is no definition in the specification for this recitation. For example, it is not clear if the a sequence characteristic is an actual base or number of bases in a sequence, the conditions and temperature at which the nucleotide sequence anneals to another sequence, its melting temperature, or some other nucleotide sequence "characteristic".

C) Claims 1-8, 10-61 and 80-94 over "said nucleotide sequence" for lack of antecedent basis. (This recitation is located in the preamble of Claim 1). Before the recitation of "said nucleotide sequence", there is no recitation of "nucleotide sequence", which is distinguished from the recitation of "nucleotide sequence **characteristic**".

D) Regarding claims 35 and 93, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

E) Claims 37-38 because it is not clear as to whether the consensus sequence is attached to the capture sequence or is located separately in a different area of the array than the capture sequence.

F) Claims 91 and 93 are indefinite due to the improper expression of alternative limitations. One acceptable form of alternative expression, which is commonly referred to as a Markush group, recites members as being 'selected from the group consisting of A, B, and C'." (MPEP 2173.05(d)). To overcome this rejection, the claim may be amended to recite a Markush format.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1-18, 24-46, 55-61, 80-85 and 87-88 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anthony et al. (J of Clin. Microbio. (2000) 38(2): 781-788, cited in the IDS), in view of Brown et al. (USPN 5,807,522).

The claimed invention is drawn to a method identifying and/or quantifying a biological organism by detecting a nucleotide sequence characteristic of said biological organism comprising amplifying sequences homologous to the nucleotide sequence of the biological organism, using primers capable of amplifying at least two of the homologous sequences, contacting the amplified sequences with single-stranded capture probes bound to an array, said array comprising at least four different bound single-stranded capture probes/cm^2 of solid support surface, and detecting hybridization of the sequences to the capture probes, wherein the detection allows for a discrimination of the of the nucleotide sequence of said biological organism from the other groups of organisms.

Anthony teaches a method identifying and/or quantifying a biological organism by detecting a nucleotide sequence characteristic of said biological organism comprising amplifying sequences homologous to the nucleotide sequence of the biological organism, using primers capable of amplifying at least two of the homologous sequences, contacting the amplified sequences with single-stranded capture probes bound to an array, and detecting hybridization of

the sequences to the capture probes, wherein the detection allows for a discrimination of the of the nucleotide sequence of said biological organism from the other groups of organisms (see whole document, especially the abstract, pages 781-784 and 787). Specifically, Anthony teaches using a universal primer pair to amplify sequences from any bacteria present, and then hybridizing the amplification products to specific capture probes on an oligonucleotide array (see pages 781-783). Anthony teaches this method is useful in discriminating various bacterial species and groups (see, for example, page 784, 2nd column). Anthony also teaches this method can be used in a wide variety of discrimination assays, the method can be automated, and can be further improved by using larger arrays. While Anthony teaches the use of an oligonucleotide array, Anthony does not teach the array comprising at least four different bound single-stranded capture probes/cm^2 of solid support surface.

However, Brown teaches the use of microarrays of biological samples comprising at least 10^3 distinct capture probes immobilized on said microarray in a surface area of less than about 1 cm^2 (see abstract and col. 4). Brown teaches the microarrays can be used in DNA hybridization assays, genotyping of organisms, identification of microorganisms, etc. (col. 1, ln. 15-19, col. 14, ln. 35 to col. 15, ln. 67 and Example 3).

Accordingly, in view of the teachings of Brown, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Anthony so as to have hybridized the amplified products to array comprising at least four different bound single-stranded capture probes/cm^2 of solid support surface. One of ordinary skill in the art would have been motivated to modify the method of Anthony in order to have achieved the benefit of providing a more efficient and more effective means detecting and

discriminating nucleotide sequences from samples of biological organisms by simultaneously analyzing thousands of samples at one time.

With respect to Claims 2-3 and 30-32, Anthony teaches at least 4 other organisms are being assayed (see pages 781-784). With respect to Claims 4-6, 13, 33, 44 and 55-58, Anthony teaches extracting DNA from said organisms, labeling components of the organisms, and that the organisms were microorganisms (pages 782-783). With respect to Claims 7-8, 10-12, 26-29 and 82 Brown teaches each capture probe (e.g., polynucleotide) is disposed at a separate, defined position in said array, has a length of at least 50 subunits, and is present in a defined amount between about 0.1 femtomoles and 100 nanomoles (see col. 4). With respect to Claims 14-16 and 18, Anthony teaches PCR is carried out using the same primer pair, amplified sequences are detected during amplification cycles and thereafter identified on the array, and amplification is carried out in the same chamber (see pages 781-784). With respect to claims 17, 36 and 85, Anthony teaches RNA can be used for the biological sample (page 781), and Brown teaches mRNA can be reverse transcribed into cDNA and then amplified (see cols. 4, 12-14, and 17-18). With respect to Claims 24-25 and 80-81, Anthony teaches the capture probes and the corresponding targets are between about 20 and about 30 bases (see Table 2 and pages 782-784). With respect to Claim 34, the target nucleotide sequence is cut before contact with the capture probe (see, for example, Example 1). With respect to Claims 35 and 84, Anthony teaches "other" primers can be used (pages 782-783). With respect to Claims 36-40, 46, 83 and 87, Anthony teaches Staphylococcus genus identification (of at least 4 Staphylococcal bacteria) using a specific capture sequence with a consensus sequences, and that the homologous sequences differ (see Table 2 and pages 782-784), as well as, teaching that more samples of the

array would improve the assay (see page 787). With respect to Claims 41-43, Brown teaches microarrays can be used for detection of polypeptides, antigens, antibodies, etc. in a wide variety of applications (see col. 15). With respect to Claim 45, Brown teaches the array can glass (see cols. 7 and 13). With respect to Claims 59-61, Brown teaches microarrays can be used in genotyping (see above) and in mutation detection (e.g., single nucleotide polymorphisms) (col. 14).

9. Claims 19-23 and 87 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anthony et al. (J of Clin. Microbio. (2000) 38(2): 781-788, cited in the IDS), in view of Brown et al. (USPN 5,807,522), as applied to Claims 1-18, 24-46, 55-61, 80-85 and 87-88 above, and in further in view of Bamdad (USPN 6,541,617).

The teachings of Anthony and Brown are presented above. Anthony and Brown teach a method of identifying and/or quantifying a sequence from a biological sample comprising carrying out PCR with a consensus primer, amplifying a plurality of samples, and then hybridizing the amplified products to specific capture probes on an oligonucleotide array (see above). Brown teaches the use of spacers on the array (e.g., glass slide surface coated with a polycationic polymer, such as polylysine) (col. 4), but Brown does not teach a spacer that is at least 6.8 nm in length.

However, Bamdad teaches "for efficient hybridization of nucleic acids on a surface, the hybridization should occur at a distance from the surface i.e., the kinetics of hybridization increase as a functions of the distance from the surface" (col. 17, ln. 9-13). Bamdad teaches that the closest nucleotide of the nucleic acid can be positioned at least 500 Angstroms from the surface (i.e., the spacer can be a polynucleotide up to 500 Angstroms or 50 nm long) (col. 17, ln.

18-2 1). It is also noted that Bamdad teaches using arrays (col. 10, ln. 20-31, for example).

In view of the teachings of Bamdad, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Anthony and Brown so as to have used a spacer of at least 6.8 nm. One of ordinary skill in the art would have been motivated to modify the teachings of Anthony and Brown in order to have achieved the benefits stated by Bamdad of increasing the kinetics of hybridization, thus providing a more efficient means of hybridization/detection.

10. Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anthony et al. (J of Clin. Microbio. (2000) 38(2): 781-788, cited in the IDS), in view of Brown et al. (USPN 5,807,522), as applied to Claims 1-18, 24-46, 55-61, 80-85 and 87-88 above, and in further in view of Gingeras (USPN 6,228,575).

The teachings of Anthony and Brown are presented above. Anthony and Brown teach a method of identifying and/or quantifying a sequence from a biological sample comprising carrying out PCR with a consensus primer, amplifying a plurality of samples, and then hybridizing the amplified products to specific capture probes on an oligonucleotide array (see above). While Anthony and Brown teach identifying bacteria, they do not teach identifying Mycobacteria.

However, Gingeras teaches the identification of Mycobacteria is essential for diagnosis and treatment of those infected with HIV (see col. 1). Gingeras also teaches Mycobacteria detection is also important for detecting drug resistance (see col. 2). Gingeras teaches using arrays comprising Mycobacteria probes (see cols. 3, 8-9, 18-23, 28-30 and the Examples).

Accordingly, in view of the teachings of Gingeras, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Anthony and Brown so as to have identified and/or quantified Mycobacteria. One of ordinary skill in the art would have been motivated to modify the teachings of Anthony and Brown in order to have achieved the benefit of providing a valuable means for detecting disease (e.g., tuberculosis, HIV, etc.).

11. Claim 48 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anthony et al. (J of Clin. Microbio. (2000) 38(2): 781-788, cited in the IDS), in view of Brown et al. (USPN 5,807,522), as applied to Claims 1-18, 24-46, 55-61, 80-85 and 87-88 above, and in further in view of Boon et al. (USPN 6,488,932).

The teachings of Anthony and Brown are presented above. The references do not teach the sequence to be identified belongs to the MAGE family.

However, Boon teaches that is advantageous to detect sequences that belong to the MAGE family (which are closely related) for the diagnosis of tumors, (See Fig. 4 and cols. 3-8, for example).

Accordingly, in view of the teachings of Boon, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Anthony and Brown so as to detect a sequence belonging to the MAGE family. One of ordinary skill in the art would have been motivated to modify the teachings of Anthony and Brown in order to have achieved the benefit of providing an effective means of diagnosing a tumor.

12. Claim 49 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anthony et al. (J of Clin. Microbio. (2000) 38(2): 781-788, cited in the IDS), in view of Brown et al. (USPN

5,807,522), as applied to Claims 1-18, 24-46, 55-61, 80-85 and 87-88 above, and in further in view of Apple et al. (USPN 5,451,512).

The teachings of Anthony and Brown are presented above. The references do not teach the sequence to be identified belongs to the HLA-A family.

However, Apple teaches that is advantageous to detect sequences that belong to the HLA-A family (which are closely related) to help determine potential transplantation donors, thus aiding in minimizing the risk of transplantation rejection. (See cols. 1-8, for example).

Accordingly, in view of the teachings of Apple, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Anthony and Brown so as to detect a sequence belonging to the HLA-A family. One of ordinary skill in the art would have been motivated to modify the teachings of Anthony and Brown in order to have achieved the benefit of minimizing the risk of transplantation rejection.

13. Claims 50-51 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anthony et al. (J of Clin. Microbio. (2000) 38(2): 781-788, cited in the IDS), in view of Brown et al. (USPN 5,807,522), as applied to Claims 1-18, 24-46, 55-61, 80-85 and 87-88 above, and in further in view of Klein et al. (USPN 6,255,059).

The teachings of Anthony and Brown are presented above. The references do not teach the sequence to be identified belongs to the dopamine or histamine receptors coupled to the G genes family.

However, Klein teaches that is advantageous to detect sequences that belong to the dopamine or histamine receptors coupled to the G genes family (which are closely related) to

mediate transmembrane signaling by external stimuli, endocrine function, carbohydrate metabolism, etc. (see cols. 1-4, for example)

Accordingly, in view of the teachings of Klein, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Anthony and Brown so as to detect a sequence belonging to the dopamine or histamine receptors coupled to the G genes family. One of ordinary skill in the art would have been motivated to modify the teachings of Anthony and Brown in order to have achieved the benefit of mediating transmembrane signaling for many vital biological processes, such as carbohydrate metabolism.

14. Claim 52 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anthony et al. (J of Clin. Microbio. (2000) 38(2): 781-788, cited in the IDS), in view of Brown et al. (USPN 5,807,522), as applied to Claims 1-18, 24-46, 55-61, 80-85 and 87-88 above, and in further in view of Murphy et al. (WO/9405695).

The teachings of Anthony and Brown are presented above. The references do not teach the sequence to be identified belongs to the choline receptors coupled to the G genes family.

However, Murphy teaches that is advantageous to detect sequences that belong to the choline receptors coupled to the G genes family (which are closely related) for use in diagnosis of neurological, viral or endocrine pathologies. (See pgs. 12-16 and 26-34, for example).

Accordingly, in view of the teachings of Murphy, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Anthony and Brown so as to detect a sequence belonging to the choline receptors coupled to the G genes family. One of ordinary skill in the art would have been motivated to modify the

teachings of Anthony and Brown in order to have achieved the benefit of diagnosing neurological, viral or endocrine pathologies.

15. Claims 54 and 90 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anthony et al. (J of Clin. Microbio. (2000) 38(2): 781-788, cited in the IDS), in view of Brown et al. (USPN 5,807,522), as applied to Claims 1-18, 24-46, 55-61, 80-85 and 87-88 above, and in further in view of Waxman et al. (USPN 6,207,648).

The teachings of Anthony and Brown are presented above. The references do not teach the sequence to be identified belongs to the cytochrome P450 isoforms family.

However, Waxman teaches that is advantageous to detect sequences that belong to the cytochrome P450 isoforms family (e.g., 2D6 and 2C19, which are closely related) for use in treatment of cancer (see cols. 3-8, 15-25 and Examples).

Accordingly, in view of the teachings of Waxman, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Anthony and Brown so as to detect a sequence belonging to the cytochrome P450 isoforms family. One of ordinary skill in the art would have been motivated to modify the teachings of Anthony and Brown in order to have achieved the benefit of identifying cytochrome P450 isoforms, which can be used in developing and providing anti-cancer drugs for use in treating cancer.

16. Claim 86 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anthony et al. (J of Clin. Microbio. (2000) 38(2): 781-788, cited in the IDS), in view of Brown et al. (USPN 5,807,522), as applied to Claims 1-18, 24-46, 55-61, 80-85 and 87-88 above, and in further in view of Vannuffel et al. (WO 99/16780, cited in the IDS).

The teachings of Anthony and Brown are presented above. The references do not teach the sequence to be identified belongs to the *FemA* gene of Staphylococci species.

However, Vannuffel teaches the specific detection of Staphylococci species using consensus sequences from the *FemA Staphylococcus* nucleotide sequence and *Staphylococcus* species specific probes (see abstract, pgs. 4-5, 8-13 and Examples 1-7). More specifically, Vannuffel teaches a method for identification and/or quantification of staphylococcal species comprising, obtaining a Staphylococcal species from a biological sample, possibly purifying and amplifying said sample, and then identifying said species through hybridization on an oligonucleotide array, wherein the consensus and specific sequences of *FemA* are used as capture nucleotide sequences (pgs. 11-12). Vannuffel also teaches that the method can be advantageously combined with another specific detection step of possible resistance to antibiotics (pg. 11). Vannuffel also teaches that the probes of the invention can be immobilized on any solid support suitable for fixation of a nucleic acid (pgs. 12-13). Vannuffell teaches that the invention can detect several Staphyoloccal species, such as *S. hominis, S. saprophyticus, S. epidermidis and S. haemolyticus* (pg. 4), and other gram-positive bacteria (pgs. 5 and 10).

Accordingly, in view of the teachings of Vannuffel, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Anthony and Brown so as to have identified and/or quantified the *femA* sequence of Staphylococcal species. One of ordinary skill in the art would have been motivated to modify the teachings of Anthony and Brown in order to have achieved the benefit of providing a means of detecting specific species of the Staphylococci genus for use in diagnosing staphylococcal infections.

17. Claim 89 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anthony et al. (J of Clin. Microbio. (2000) 38(2): 781-788, cited in the IDS), in view of Brown et al. (USPN 5,807,522), as applied to Claims 1-18, 24-46, 55-61, 80-85 and 87-88 above, and in further in view of Musser (Clin Microbiol Rev. (1995) 8(4): 496-514).

The teachings of Anthony and Brown are presented above. The references do not teach the sequence to be identified belongs to a gene encoding sub-unit of A gyrase.

However, Musser teaches that is advantageous to detect sequences that belong to the gene encoding sub-unit of A gyrase for use in determining antimicrobial agent resistance (see pages 506-507).

Accordingly, in view of the teachings of Musser, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Anthony and Brown so as to detect a gene encoding sub-unit of A gyrase. One of ordinary skill in the art would have been motivated to modify the teachings of Anthony and Brown in order to have achieved the benefit of determining antimicrobial agent resistance.

18. Claims 91 and 93 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anthony et al. (J of Clin. Microbio. (2000) 38(2): 781-788, cited in the IDS), in view of Brown et al. (USPN 5,807,522), as applied to Claims 1-18, 24-46, 55-61, 80-85 and 87-88 above, and in further in view of Rose et al. (Nuc. Acid Res. (1998) 26(7): 1628-1635).

The teachings of Anthony and Brown are presented above. The references do not teach the sequence to be identified belongs to animal species such as Galinaceae or plant species of barley.

However, Rose teaches the amplification of distantly related sequences including chicken and barley by using consensus primers (see abstract and pages 1629-1634). Rose teaches this method is advantageous for isolating sequences of distantly related (e.g., homologous) sequences (see pages 1628-1629 and 1635).

Accordingly, in view of the teachings of Rose, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Anthony and Brown so as to detect animal species such as Galinaceae or plant species of barley. One of ordinary skill in the art would have been motivated to modify the teachings of Anthony and Brown in order to have achieved the benefit of determining distantly related sequences such as chicken and barley.

19. Claim 92 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anthony et al. (J of Clin. Microbio. (2000) 38(2): 781-788, cited in the IDS), in view of Brown et al. (USPN 5,807,522), as applied to Claims 1-18, 24-46, 55-61, 80-85 and 87-88 above, and in further in view of Apostolidis et al. (Heredity (1996) 77(6): 608-618, abstract only).

The teachings of Anthony and Brown are presented above. The references do not teach the sequence to be identified belongs to fish species such as S. trutta.

However, Apostolidis teaches the genetic differentiation and phylogenetic relationships among Greek Salmo trutta populations as reveled by PCR (see abstract). Apostolidis teaches this method is advantageous for differentiating different trout species in various populations (see abstract).

Accordingly, in view of the teachings of Apostolidis, it would have been obvious to one

of ordinary skill in the art at the time the invention was made to have modified the method of Anthony and Brown so as to detect fish species such as S. trutta. One of ordinary skill in the art would have been motivated to modify the teachings of Anthony and Brown in order to have achieved the benefit of differentiating different trout species in various populations.

20. Claim 94 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anthony et al. (J of Clin. Microbio. (2000) 38(2): 781-788, cited in the IDS), in view of Brown et al. (USPN 5,807,522), as applied to Claims 1-18, 24-46, 55-61, 80-85 and 87-88 above, and in further in view of Dickinson et al. (Pub. No. US 2002/0102578).

The teachings of Anthony and Brown are presented above. The references do not teach the sequence to be identified genetically modified organisms.

However, Dickinson teaches the use of probe arrays comprising GMOs, which can used for checking seed lots, only the intended strains are present, and to validate that the product is GMO free (see pages 34-35).

Accordingly, in view of the teachings of Dickinson, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Anthony and Brown so as to detect GMOs. One of ordinary skill in the art would have been motivated to modify the teachings of Anthony and Brown in order to have achieved the benefit of ensuring a product is the intended product, and that the product is GMO free, if desired.

Conclusion

21. No claims are allowable.

22. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander H. Spiegler whose telephone number is (703) 305-0806. The examiner can normally be reached on Monday through Friday, 7:00 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion can be reached on (703) 308-1119. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-4242 and (703) 305-3014. Applicant is also invited to contact the TC 1600 Customer Service Hotline at (703) 308-0198.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

Alexander H. Spiegler
December 26, 2003

GARY BENZION, PH.D
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600